

Characterisation of the livestock production system and potential for enhancing productivity through improved feeding in Uttarakhand, India, December 2009

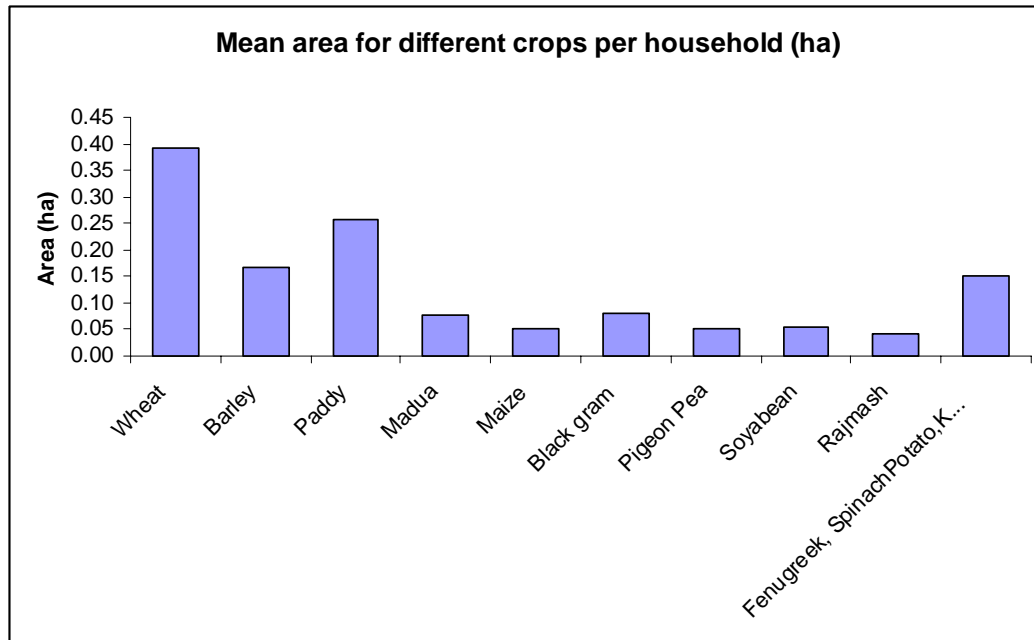
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The Feed Assessment Tool (FEAST) is a systematic method to assess local feed resource availability and use. It helps in the design of intervention strategies aiming to optimize feed utilization and animal production. More information and the manual can be obtained at www.ilri.org/feast

FEAST is a tool in constant development and improvement. Feedback is welcome and should be directed feast@cgiar.org. The International Livestock Research Institute (ILRI) is not responsible for the quality and validity of results obtained using the FEAST methodology.

Farming system

The villages assessed (Footsil, Ganora, Dungari, Siroli, Kameda, Senti) are all characterized by mixed crop-livestock systems. Cereal and legume cropping predominate and livestock are kept mainly to supply draught power for tillage and as a source of milk for domestic consumption. Arable production is largely rainfed: in Rabi season (October-June) the main crops are wheat, barley, mustard and vegetables. In Kharif season major crops are paddy, maize, finger millet, barnyard millet, pulses and vegetables. There is a small amount of irrigated land allowing paddy rice and vegetables to be grown. Average productivity of crops (especially paddy) in irrigated land is 14-15 quintal/ha, while productivity of crops grown in rainfed land varies from 8-10 quintal/ha. Labour is generally derived from family labour. Women undertake many of the livestock-related activities particularly in collection of fodder from communal forest areas. This represents a major demand on labour as is a significant constraint within the system.

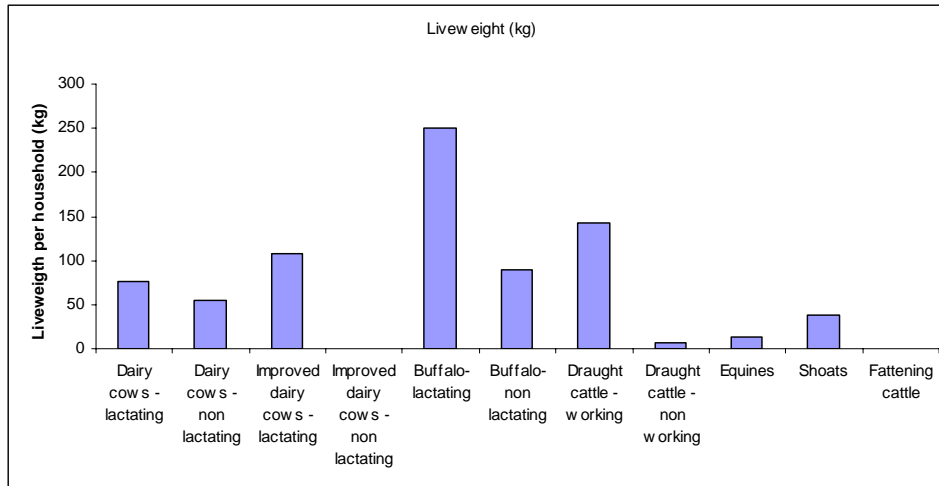


Major income sources

The agricultural system is largely subsistence oriented. There is some sale of vegetables and milk as cash income sources. Livestock are central to the agricultural system in supplying draught power, manure etc but management of livestock for market-oriented production is minimal. Average annual earning from sale of milk varies from Rs.10,000 to Rs.14,000/family. In addition, around 50 percent families of the village also rear goats and annual earnings from sale of goat varies from Rs.2,500 to Rs.5,000/family. As well as agricultural activities, some households derive some income from government jobs and there is presumably some remittance income from youth working outside the area.

Livestock production system

Livestock are kept primarily for draught power and manure to support arable operations. Milk production, primarily for domestic consumption, is also important. The draught power function of livestock is critical because of small plot sizes with limitations on mechanisation potential. There is seasonal migration of households to different homesteads at different altitudes to make use of agro-ecological variation. Livestock are fed using a mixture of zero-grazing and free grazing. Buffaloes are largely stall fed, cattle are stall –fed during monsoon and shoats are entirely free grazed. The difficult and mountainous terrain restricts access to livestock-related services and to markets. There is little AI for example and there has been little introduction of improved genetic material.

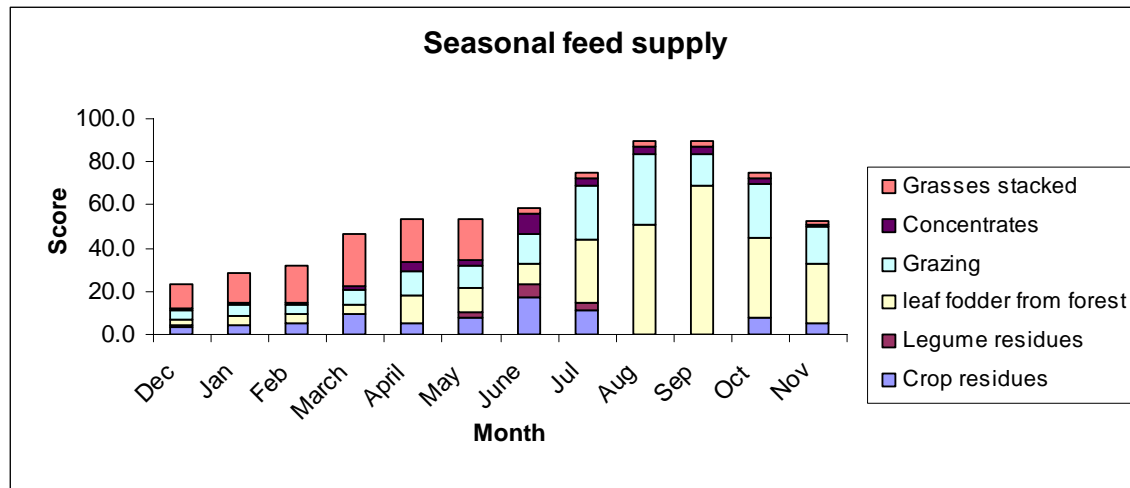


Problems, issues, opportunities

Fodder scarcity is a major issue. Although breed improvement is minimal, milk yields are even below the potential of the existing indigenous animals and feed scarcity is a major factor. Grazing land is under severe pressure and long hours are spent by women in collecting fodder from forest areas. Access to veterinary services and AI limit opportunities for enhanced animal performance. In terms of opportunities identified at village level, improved community management of common grazing resources appears promising for alleviation of feed scarcity. There also appear to be opportunities for goat rearing to exploit high local demand for goat meat.

Major feed sources throughout the year

Feed supply is highly seasonal. During the monsoon season abundant grazing resources and tree leaf fodder fulfill feed needs. Seasonal shortages are reduced through storage of seasonal grasses. Concentrate feeding is minimal. Crop residues form a component of the feed resource for livestock for most of the year.



Potential interventions

The most immediate constraint for livestock production in the area is feed scarcity. In terms of **feed interventions**, there is limited potential for on-farm fodder production due to land scarcity. The labour required to fetch tree fodder is a major demand on the system and any potential intervention needs to aim to produce more high quality material to feed within close proximity to homesteads. The two major feed interventions in progress are planting of bunds with Congo Signal grass and Napier and introduction of improved fodder pigeon pea. Pigeon pea was selected since it is already in the system and introduction of higher biomass varieties would represent a win-win solution. However, the amount of extra biomass produced is likely to be relatively small. Introduction of high yielding grasses on bunds appears to be a promising strategy and since seasonal grasses are already harvested and stored, this strategy should fit readily into the system. An additional possibility would be introduction of improved fodder trees on bunds in the form of hedges.

There could be merit in considering the **commodity focus of the livestock enterprise**. Most attention has been directed toward dairy production to date and the establishment of mini-dairies is impressive. However, the difficult terrain and market accessibility present problems for production of a perishable commodity such as milk. An alternative commodity could be live goat sales since there appears to be strong demand at competitive prices for finished goats. There could be a case for developing a goat rearing system based on confined feeding on tree forage and grass. A market feasibility study would be the first step in developing this option.

Process

This analysis and thoughts on interventions need to be part of a participatory process of enhancing livestock production based on dialogue with farmers and other local stakeholders. Based on experiences in Ethiopia and in Vietnam, attempts to deal with feed scarcity seem to be most successful when tackled by a stakeholder group through regular meetings and a rolling joint action plan. The assessment presented here is merely a means of providing an external assessment of the current situation and ways of changing it. This could be used as a discussion

starter for a stakeholder dialogue. Such stakeholder groups work well with diverse actors from research, extension, NGO's, milk co-operatives, farmer groups etc. The next stage could be establishment of such local stakeholder groups (or strengthening existing ones).

Key issues:

- Feed shortage
- Heavy labour demands for collecting feed, mainly on women
- Inaccessibility of farms

Ways forward:

- Community-based management of common pasture resources to enhance feed availability close to homesteads
- Explore possibilities for goat rearing as an alternative to dairy production

Key metrics

Milk yield per household: 1930 litres per year

Meat offtake rate: 2%

ME per TLU: 8.8 MJ per day

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